

PROSTATITIS

An evaluation of laboratory procedures and of the effectiveness of nitrofurantoin

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■ *An estimate of the pus content of prostatic fluid is as good as a count in a counting chamber. There is no correlation between the pus content and the severity of symptoms. Of all of the criteria for making a diagnosis of prostatitis, the pus content of the fluid is the least important. Culture of prostatic fluid is of very little, if any, value for making a diagnosis or guiding treatment. The results of treatment of chronic prostatitis by prostatic massage only, are as good as those obtained by massage plus nitrofurantoin. Acute and subacute prostatitis responded well to nitrofurantoin, and there seemed less likelihood of recurrence when the drug was continued in small doses for four weeks.*

ONE OF THE CRITERIA which is used to diagnose prostatitis is an estimate of the number of leukocytes in the prostatic fluid. The common method of making this estimate is to examine under the high dry power of the microscope a wet mount of the prostatic fluid covered by a cover slip and record the approximate number of cells in the field.

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In order to determine whether or not such an estimate was correct, we made a count on a blood counting chamber and compared this with the rough estimate made by a quick glance at the wet mount. This comparison showed a significantly close correlation between the estimate and the count (Chart 1). It is therefore accurate enough for all practical purposes to estimate the number of pus cells in prostatic fluid; an accurate count is not necessary.

Comparison of cell count with symptoms. Some urologists do not believe that the number of leukocytes in prostatic fluid is even a rough estimate of

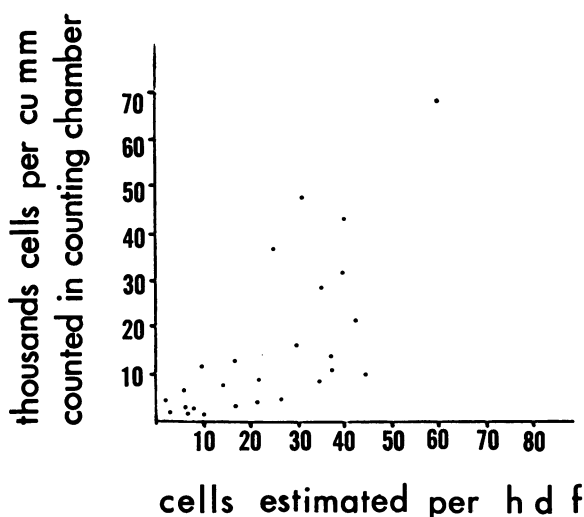


Chart 1.—Comparison of a quick estimate of pus in prostatic fluid with an accurate count of cells (hdf = high dry field).

TABLE 1.—Correlation Between Severity of Symptoms and Number of Pus Cells in Prostatic Fluid

Cells per high dry field	Cases	Symptoms					
		Mild		Moderate		Severe	
		Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
< 15	22	12	55	8	36	2	10
15-30	35	17	49	16	45	2	6
30-50	26	10	38	11	42	5	20
> 50	12	4	33	7	60	1	7
Total	95	43	50	32	38	10	12

the severity of the infection and that the presence of cells is not a criterion in the diagnosis of prostatitis. In order to determine whether or not this is true, a comparison of the cell count with the symptoms was made (Table 1). It was found that the number of pus cells in the prostatic fluid did not correlate with the severity of symptoms. Gartman has reported a similar conclusion.² There are many patients who continue to have a count of more than ten cells per field for many months but who have no symptoms.

Culture of urine and prostatic fluid. An effort was made to determine if possible whether or not a culture of the urine or of prostatic fluid is of value

in making a diagnosis. The second portion of voided urine was cultured for bacteria. The prostate gland was then massaged, and a subsequently voided specimen of urine which contained prostatic fluid, was cultured for bacteria. Sixty such double cultures were done. In 35 of them, both cultures were positive for bacterial growth and in eight of these the growth in the prostatic fluid was heavier than that in the urine. In only seven of the 60 double cultures was the urine sterile and the prostatic fluid positive. There were four, surprisingly, in which the pre-massage urine was positive and the prostatic fluid sterile. In only 16 of 80 positive cultures were there more than 100,000 colonies per milliliter. Thirty-four of the 80 showed less than 1,000 per milliliter and in these instances the bacterial growth was probably due to contamination.

Considering the results of this study on the culture of organisms from prostatic fluid, it is our opinion that doing a culture to make a diagnosis or to guide treatment is not valuable enough to be worthwhile. The contamination rate is high, as evidenced by the large number of cultures of less than 1,000 organisms per milliliter.

Effect of nitrofurantoin on cultures. Fifteen patients were studied by cultures of urine and prostatic fluid before and after administration of nitrofurantoin. Of the urine specimens voided before prostatic massage, eight showed a definite decrease in number of organisms cultured compared with specimens taken before nitrofurantoin was given. Six remained the same and one showed an increase. Of the specimens taken after prostatic massage, which contained both urine and prostatic fluid, 11 showed a decrease, three were the same and one showed an increase.

Rectal palpation. The consistency, contour and size of the prostate gland is a criterion used in the diagnosis of prostatitis. The acute stage is recognized by the enlarged, tense and tender gland as palpated through the anterior rectal wall. When the gland is irregular, firm in some areas and softer in other places, the infection is considered subacute. Sometimes subacute prostatitis cannot be distinguished by rectal palpation from prostatic carcinoma. In chronic prostatitis, without accompanying benign hypertrophy or other prostatic disease, the

TABLE 2.—Comparison of Results of Treatment by Prostatic Massage Only, with That by Massage Plus Nitrofurantoin

State of Disease	Total	Relieved		Improved		Same		Worse	
		Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Chronic—									
Prostatic massage only	40	16	40	20	50	3	7.5	1	2.5
Massage plus Nitrofurantoin	21	4	20	9	48	6	32	—	—
Acute and subacute—									
Prostatic massage only	0	—	—	—	—	—	—	—	—
Massage plus Nitrofurantoin	9	4	44	4	44	1	11	0	—

TABLE 3.—Comparison of Results of Treatment by Prostatic Massage Only with Massage Plus Nitrofurantoin—Amount of Pus in Prostatic Fluid

Total Cases	Cells Decreased		Cells Same		Cells Increased	
	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Massage only	40	33	82	2	5	5
Massage and nitrofur. 38	29	80	3	7	6	13

gland is not enlarged and is usually slightly irregular and firmer than normal.

There is a definite correlation between symptoms and the acuteness of the infection. In the acute stage the patient has frequency, urgency, difficult urination, pain in the region of the prostate gland and fever. Subacute prostatitis causes similar but less severe symptoms. When the infection is chronic, there is mild urgency, frequency, slight aching in the prostate gland and sometimes urethral discharge. In the cases we studied there were nine cases of acute or subacute and 61 of chronic prostatitis as diagnosed by rectal palpation. In most of these the symptoms were more severe in the acute and subacute and mild in the chronic.

Treatment

In order to determine the effect of treatment with nitrofurantoin (Furadantin®) we compared a series of 40 patients with chronic prostatitis who were treated by prostatic massage only, with another series of similar patients who were given prostatic massage and also nitrofurantoin. Those patients who had chronic prostatitis were relieved of their symptoms as readily by prostatic massage only as by the combination of massage and the anti-infection drug (Table 2). Pus content of prostatic fluid was reduced approximately the same in those patients who had prostatic massage only as in those who had prostatic massage plus nitrofurantoin (Table 3). There were no patients with acute and subacute prostatitis who were not given some anti-infection drug. Therefore there is no control series in this group (it would in our opinion be unwise to withhold anti-infection drugs from patients with acute

TABLE 4.—Side Effects of Nitrofurantoin in 38 Patients

Effect Observed	Frequency
Nausea and/or vomiting	6
Chills, fever and sweating	5
Dizziness	4
Headache	3
Pain and aching in joints	3
"General discomfort"	2
Epigastric pain	1
Hives	1

and subacute prostatitis.¹) The relief of symptoms was, however, good in all patients who had acute and subacute prostatitis who were given nitrofurantoin. From our observations in this study, it is our opinion that there is less likelihood of recurrence of symptoms in acute and subacute cases when the anti-infection agent is continued in small doses for a period of four weeks.

In our opinion the best treatment regimen for patients with acute or subacute prostatitis is 50 mg of the drug four times a day for one week, then 50 mg twice a day for three more weeks. The rate of recurrence was less following this regimen than when only one week's treatment was given. Prostatic massages should be continued once a week for about six weeks, then the interval between treatments gradually increased until, at the end of six months, treatment can be discontinued in most cases.

Side effects of nitrofurantoin. In two of 38 cases in this series, the drug was discontinued because of rather severe side effects. Fourteen of the remaining thirty-six patients showed definite reactions due to the drug, and in two others there were questionable side effects (Table 4). Some patients had more than one reaction. The drug was more effective in clearing up infections in patients who had reactions than in those who did not.

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